

**REMARKS**

Claims 1-12 are pending in this application. By this Amendment, claims 1 and 10 are amended and new claims 11 and 12 are added. Reconsideration of the application is respectfully requested.

The Office Action objects to claim 10 because it is incomplete. Claim 10 is amended to overcome the objection. Accordingly, withdrawal of the objection to claim 10 is respectfully requested.

The Office Action rejects claims 1-2, 4-6 and 10 under 35 U.S.C. §102(e)/103(a) over O'Keeffe (U.S. Patent Application Publication No. 2003/0098488 A1); and claims 1-10 under 35 U.S.C. §103(a) over O'Keeffe in view of Watanabe (U.S. Patent Application Publication No. 2002/0024099 A1). The rejections are respectfully traversed.

In particular, Neither O'Keeffe nor Watanabe, alone or in combination, disclose, teach or suggest an active electronic device or an electronic apparatus that includes a carbon nanotube, a first electrode, a second electrode and a third electrode, wherein a conductance of the carbon nanotube is controlled by varying a frequency of the electromagnetic waves radiated from the third electrode onto the carbon nanotube, wherein the frequency includes at least a predetermined frequency so that the conductance of the carbon nanotube is increased, as recited in independent claim 1, and similarly recited in independent claim 10.

O'Keeffe teaches a method to electronically modulate the energy gap and band structure of semiconducting carbon nanotubes when the nanotube is placed in an electric field perpendicular to the tube axis (Abstract).

Watanabe teaches a transistor that is capable of high speed operation and operates at room temperatures by using carbon nanotubes for semiconductor devices (Abstract).

However, O'Keeffe teaches that the electrical conductance of the nanotube can be controlled by controlling the strength of the electric field applied to the tube in a direction transverse to the length of the tube (section [0052], lines 4-6 and section [0055], lines 11-14).

As such, O'Keeffe does not teach that only electromagnetic waves of the specific frequency are transmitted to the carbon nanotube in order to improve the conductance of the carbon nanotube. As such, O'Keeffe fails to disclose, teach or suggest the features of independent claims 1 and 10. Also, Watanabe fails to cure the deficiencies of O'Keeffe. As such, the asserted combination of O'Keeffe and Watanabe would not result in the claimed invention.

Accordingly, independent claims 1 and 10, and their dependent claims, are patentable over the applied references. As such, withdrawal of the rejection of the claims under 35 U.S.C. §102(e) and 35 U.S.C. §103(a) is respectfully requested. Claims 11 and 12 are allowable in view of their dependence upon allowable claims 1 and 10.

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1-12 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



James A. Oliff  
Registration No. 27,075

Tarik M. Nabi  
Registration No. 55,478

JAO:TMN/tje

Date: March 14, 2005

**OLIFF & BERRIDGE, PLC**  
**P.O. Box 19928**  
**Alexandria, Virginia 22320**  
**Telephone: (703) 836-6400**

<p>DEPOSIT ACCOUNT USE AUTHORIZATION Please grant any extension necessary for entry; Charge any fee due to our Deposit Account No. 15-0461</p>
--